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ABSTRACT

This report presents a formative evaluation of the first year's program of Trailwoods Environmental Science School, a magnet elementary school in the Kansas City School District in Missouri. The school serves students in grades kindergarten through grade 5 and began operation in the fall of 1990. The report focuses on the implementation of the program; achievement scores; and the perceptions of students, parents, and school staff toward the program. Site and classroom visits together with documentation of student participation in theme related field trips provided evidence of the implementation of the magnet theme (environmental science) as well as infusion of the theme across the curriculum. A summary of test scores appears in table form along with clarifying information. Parent and student perceptions of the program were positive while the teacher's response to questionnaires was mixed. Parent, student, and teacher responses are portrayed in tables 10-12. Conclusions and specific recommendations based on the data gathered are contained at the end of this report. Recommendations include a continuation of staff training opportunities; improvement with communication and team building between administration, support staff, and faculty; formulation of a discipline plan; establishment of a cohesive planning team with the principal and extended day program staff; and additional opportunities for computer inservice. (MCO)

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Formative Evaluation of the Trailwoods Environmental Science Magnet Elementary School

1990-1991

Evaluation Office

The School District of Kansas City, Missouri

August 1991

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Formative Evaluation of the Trailwoods Environmental Science Magnet Elementary School

1990-1991

Margaret Seever
Program Evaluator

August 1991

Evaluation Office
Desegregation Planning Department
The School District of Kansas City, Missouri

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Executive Summary

The Trailwoods Environmental Science School began operation in the fall of 1990 under the name of Elementary III pending assignment of a permanent name. The program serves students in grades kindergarten through grade five. This report is a formative evaluation of the program's first year. The report focuses on the implementation of the program, the 1990-91 Iowa Tests of Basic Skills (ITBS) and Missouri Mastery and Achievement Test (MMAT) achievement scores, and the perceptions of students, parents, and school staff toward the program.

Demographic data summarized as of September 1990 show that Trailwoods, a newly created magnet school, approached a 60/40 minority to non-minority split (+ /- 2%) at second and third grade levels with kindergarten, first, fourth, and fifth grades having 68%, 63%, 56%, and 66% grade five, with 68% and 66% minority respectively.

Site visits to Trailwoods revealed ample visible evidence of the implementation of the magnet theme. This evidence included such things as aquariums, animals (live and preserved), photographs, posters, mobiles, student work, etc. in the hallways and classrooms. Additional evidence of implementation was Trailwoods students' participation in numerous theme related field trips and infusion of the theme across the curriculum.

A summary of ITBS scores shows that Trailwoods students scored at or above the national norm (the 50th percentile) across all grade levels in science, in all but fifth grade in social studies, and in kindergarten, first, second, and third grades in language. Kindergarten, first and second grade students scored at or above the norm across all subjects with the exception of first and second grade reading. Fifth grade students did not score at or above the national norm in any subject area except for science and no grade level scored at or above the norm in reading.

On the MMAT, Trailwoods scores are comparable with the Kansas City, Missouri School District (KCMSD) in reading, science, social studies,and math. Compared with the state, Trailwoods is weak in all four subject areas.

The perceptions of parents were overwhelmingly positive. Student perceptions were also very positive with large majorities of students responding that they not only liked the program and were learning about most facets of it, but also that they were putting into practice many of the environmentally sound behaviors that they had learned. Responses by teachers were mixed. On the positive side, over 90% of the teachers responding agreed or strongly agreed that the science resource teachers provided the support they needed to successfully implement

the magnet theme and that they were satisfied with the quality of the students' field experiences. Eighty-seven percent stated that they believed that students participated in enough theme-related field trips, that the school is implementing the theme according to the plan identified goals and objectives, and that they personally engaged in more environmentally sound behaviors as a result of increased knowledge about environmental issues gained through their experience at an environmental science magnet school. On the negative side, teachers revealed communication problems in several areas including among staff/faculty, between faculty/staff and administration, and between faculty/staff and parents. A majority of teachers also cited problems with discipline and revealed that they did not feel comfortable with their knowledge of computers and their application in the classroom.

There are many signs of successful implementation of the theme during this first year with visible evidence in displays, some excellent theme-oriented field trips and activities, supportive science resource teachers, and positive feedback from both parents and students. The early identification of communication and discipline problems in this first year of implementation will allow the administration and staff time to work on them so that they do not interfere with implementation of the magnet program over the next two years. Specific recommendations based on the data gathered are contained at the end of this report.

FORMATIVE EVALUATION
OF THE
TRAILWOODS ENVIRONMENTAL SCIENCE
MAGNET ELEMENTARY SCHOOL

1990-1991

Introduction

The Trailwoods School for Environmental Science began operation in the fall of 1990 under the name Elementary III (EIII) pending assignment of a permanent name. The board of education approved the name Trailwoods in December 1990. This end-of-year formative report covers the implementation of the program during the 1990-91 school year. The report examines student demographic data, evidence of the degree to which the program has been implemented, staff, student, and parent perceptions of the program, and achievement data. A final section draws conclusions about the program and makes recommendations for program improvement.

It is important to emphasize that this is a formative evaluation report. According to the *Long Range Magnet Plan* (Hale & Levine, 1986), "a school's effectiveness should **not** be determined during its first year of operation . ... during its early years [evaluation] should be designed with the intent of improving, modifying, and revising program implementation." (pp. 46-47). The *Long Range Magnet Plan* further states that there should be two years of formative evaluation before a summative evaluation is done in year three.

Program Description

The Trailwoods School for Environmental Science serves students in grades kindergarten through grade five. The school began operation in 1990-91 at the former North Rock Creek site, sharing grounds with the North Rock Creek/Korte building, pending construction of its permanent building. The school infuses its environmental science magnet theme into the district's core curriculum. Its mission is encapsulated in the following statement taken from the Elementary III Environmental Science Magnet Planning Outline (Elementary III Environmental Science Task Force, 1990):

> The Environmental Science Magnet theme will foster an appreciation and understanding of the principles and natural processes upon which life depends. The environmental education theme will develop environmental awareness, sensitivity,

understanding of people, environmental interactions, higher order thinking skills and positive action skills.

The program objectives stated in the planning document include development of a learning resource center equipped with theme-related materials for students, faculty, and the community, establishment of on-going recycling projects, infusion of environmental science throughout the curriculum, use of computers for the improvement of basic skills, computer literacy, and for the investigation and analysis of environmental topics and issues, participation in seasonal outdoor education experiences, including overnight camping, creation of opportunities to develop an awareness and appreciation of other cultures through activities, clubs and organizations in a desegregated school setting, and improvement of standardized student test scores averages to meet or exceed national and state norms.

Evaluation Design

The following questions were used to focus information collected for this report:

1. What is Trailwoods' enrollment breakdown, by grade and minority/non-minority status?
2. What progress has been made in implementing the environmental science theme as proposed in the *Long Range Magnet Plan* and the school's planning outline?
3. What are the perceptions of administration, faculty, support staff, students, and parents regarding the current school year?
4. What are Trailwoods' 1990-91 achievement scores on the MMAT and ITBS?

Student enrollment data for 1990-91 were obtained from the district's Research Office. These data were taken from the report prepared by that office at the same point each year, late September, to help ensure comparability among years. Implementation data were obtained from observations conducted by the Evaluation Office, a teacher questionnaire, interviews and discussions with school staff, and documents provided by the school. Teacher, administration, support staff, student, and parent perceptions were measured using questionnaires administered near the end of the school year. Information reported about Trailwoods' curriculum, goals, or objectives was obtained from the Elementary III Environmental Science Magnet Planning Outline (Elementary III Environmental Science Task Force,1990).

Results and Discussion

Demographics

Table 1 reports Trailwoods environmental science program capacity for each grade level as utilized by the district Admissions Office for placement in programs, the actual enrollment as reported by the district Research Office, the difference between the two figures, and the percent of the capacity that was filled. Most grade levels were filled reasonably close to capacity, with grades one, three, and five having one or two students over capacity (translating to 105%, 102%, and 104% of capacity respectively). Grades kindergarten, two, and four were three to six students below capacity (translating to 93%, 86%, and 89% of capacity respectively). Overall, the school was filled to 96% capacity with 274 students. Enrollment data broken down by grade level and minority/non-minority status for 1990-91 are contained in Table 2. Because Trailwoods is a newly created school, its enrollment objective was a 60% minority/40% non-minority ratio at all grade levels. Table 1 shows that Trailwoods accomplished this goal (within + /- 2%) at second and third grade levels with 58% and 60% respectively. Kindergarten, first, fourth, and fifth grade had 68%, 63%, 56%, and 66% minority respectively.

Implementation

Staff Development/Inservice. Table 3 presents teacher responses to questions concerning staff development/inservice. Eighty-one percent of teachers responding stated that

Table 1

Percent of Enrollment Capacity Filled for Trailwoods Environmental Science Program 1990-1991

Grade	Program Capacity [1]	Actual Enrollment [2]	Difference	% of Capacity
K	44	41	- 3	93%
1	44	46	+ 2	105%
2	44	38	- 6	86%
3	44	45	+ 1	102%
4	54	48	- 6	89%
5	54	56	+ 2	104%
Total	284	274	-10	96%

[1] Program capacity utilized by the Admissions Office when placing students in magnet programs.

[2] From *September 26, 1990 Student Membership Report* (Research Office, 1990).

Table 2

Trailwoods Enrollment by Grade Level and Minority/Non-Minority Status for 1990-1991

Grade	Minority %	Minority N	Non-Minority %	Non-Minority N
K	68%	28	32%	13
1	63%	29	37%	17
2	58%	22	42%	16
3	60%	27	40%	18
4	56%	27	44%	21
5	66%	37	34%	19
Total	62%	170	38%	104
Grand Total		**274**		

Note: Enrollment data from the district Research Office.

Table 3

Trailwoods Teacher Questionnaire Responses to Staff Development/Inservice Items Spring 1991

Item		Response Alternatives	(N = 16)
1.	How often were you able to apply in your classroom information from inservice related to theme implementation and infusion	Very Frequently	0%
		Often	81%
		Seldom	19%
		Never	0%
2.	How satisfied have you been with the staff development and inservice sessions regarding the environmental science theme?	Very Satisfied	20%
		Satisfied	47%
		Dissatisfied	27%
		Very Dissatisfied	7%
3.	How satisfied have you been with the staff development and inservice sessions regarding the district's core curriculum?	Very Satisfied	7%
		Satisfied	47%
		Dissatisfied	47%
		Very Dissatisfied	0%
4.	Do want additional inservice to:		
	a. help with Environmental Science theme infusion	Yes	81%
	b. increase knowledge of environmental science	Yes	63%
	c. increase effectiveness of instruction	Yes	19%
	d. learn about more effective discipline	Yes	38%
	e. increase knowledge about use/application of computers	Yes	56%

they were able to apply information from theme-related inservice in their classrooms often (item 1). Asked about their satisfaction with staff development/inservice, 67% of the teachers were satisfied or very satisfied with theme-related inservice (item 2) while 54% of the teachers stated they were satisfied or very satisfied with sessions regarding the district's core curriculum (item 3). Item four defines areas in which teachers said they wanted more inservice. These included sessions designed to help with theme infusion (81%), increase knowledge of environmental science (63%), increase knowledge about use/application of computers (56%), learn about more effective discipline (38%), and increase effectiveness of instruction (19%).

Trailwoods facilities/grounds and materials/supplies. Teachers were asked about their satisfaction with and use of the Trailwoods grounds and facilities. Their responses to these questionnaire items are presented in Table 4. Only 31% of responding teachers stated that they were satisfied with the Trailwoods buildings, grounds, etc. (item 1). Thirty-three percent of the teachers believe the Learning Resource Center (LRC) is well equipped with newspapers, periodicals, books, and other materials for study of environmental issues by students and/or faculty (item 2). In an interview, the principal stated that materials were now being purchased and catalogued and the LRC would be much better equipped and organized during

Table 4

Trailwoods Teacher Questionnaire Responses to Items Concerning Materials and Facilities Spring 1991

Item		Response Alternatives	(N = 16)
1.	How satisfied have you been with the adequacy of the Trailwoods facilities (i.e. buildings, grounds etc.)?	Very Satisfied	6%
		Satisfied	25%
		Dissatisfied	44%
		Very Dissatisfied	25%
2.	Do you believe the Learning Resource Center is well equipped with newspapers, periodicals, books, and other materials for study of environmental issues by students and/or faculty?	Yes	33%
		No	67%
3.	In general, have you been able to get the materials and supplies necessary to teach the environmental science theme?	Yes	92%
		No	8%
4.	In general, have you been able to get the materials and supplies necessary to teach the district's core curriculum?	Yes	92%
		No	8%

1991-92. Ninety-two percent of the teachers responding stated that they were able to get the materials and supplies necessary to teach both the environmental science theme coursework and the district core curriculum (items 3 and 4). The principal reported that the computer lab was installed in April with kindergarten and first grade classes scheduled to use the lab in May. As of the second week of May six additional computers and their accompanying software for every grade level and some software ordered specifically for grades two through five had not arrived.

Visible evidence of magnet theme. The Environmental Science theme would be immediately obvious to even the casual observer entering the Trailwoods building. Observations were conducted in hallways and classrooms in the fall and spring to document visible evidence of the magnet theme. In addition to the art and music classrooms, one classroom was randomly selected from each grade level both semesters. On the average there were 137 displays per classroom in the spring. Individual hallways had counts of greater than 75 displays on each check. Displays were found in 100% of the rooms visited with a range of 54 to 207 displays in any single room. There were many types of theme-related displays including posters, plants, aquariums, models, photographs, student work (from all subject areas), animals (live and preserved) and terrariums. Displays most frequently dealt with wildlife, followed by trees and plants, meteorology, insects, recycling/ecology, geography/geology, and ocean life. Follow-up checks of the eight selected classrooms four weeks later revealed that many displays had been changed to fit the content being covered and that displays of a more permanent nature (e.g., aquariums) were kept up and enhanced. There was also visible evidence of theme implementation on the school grounds through student gardening and landscaping efforts.

Field trips and theme related activities. Another indicator of magnet theme related activity is the number and type of field trips. A review of field trips by Trailwoods' students revealed that 43 excursions were made to 29 locations during spring 1991, with some locations visited by more than one group. A perusal of the field trip destination list presented in Table 5 shows that the great majority of the experiences appear to be theme related. The principal reported that kindergarten, second, fourth, and fifth graders went on six field trips each while first and third graders went on eight excursions. Second graders camped out on the school grounds and third, fourth and fifth grade students went to the Rotary Camp. Third graders also camped in Topeka, Kansas, fourth graders went camping at a Missouri campground, and fifth graders went on a longer camping trip in the Southwest. The school has also participated in

Table 5

Trailwoods Field Trip Destinations in 1990-91

Amtrak to Lee's Summit	Kaleidoscope	Rotary Camp
Bartlesville, Oklahoma	Kansas City Museum/Planetarium	Science Fair at Bartle Hall
Black Archives	Kansas City Symphony	Shawnee Mission Science Lab
Burr Oak Woods	Kansas City Zoo	Shoal Creek
Cave Springs	Kemper Center at Lake Jacomo	Southwest United States
Cosmophere at Hutchinson, KS	K.U. Museum of Natural History	Swope Park Nature Center
Children's Museum	Line Creek	Swope Park Outdoor School
Estimation Workshop at Pavillion	Martha LaFite Thompson Sanctuary	Theatre for Young America
Gem and Mineral Show	Mt. Gilead	Topeka Zoo
Green Mill Candy Factory	Planetarium at Southwest H.S.	Waste Management Center
Hodge Park	Research Hospital	Wilson, Kansas

many theme related activities throughout the year including the all species parade (in costume), a flower bulb sale, Earth Day activities, outdoor days, and science fairs. Visiting speakers included the Nowlin sixth graders with sciences demonstrations, science and technology coordinator Bruce Evans, and Wayne Steward and his snake. There was also an activity centered around career awareness. Students were involved in recycling projects for paper and aluminum cans throughout the school year. The students were also actively involved in Friends of the Zoo and participated in the Adopt an Endangered Species program. Students were involved in several landscaping projects with all grade levels planting both vegetables and flowers and the fifth grade doing a more extensive project on the grounds.

Teacher reported theme infusion. Responses to implementation-related items on a questionnaire administered in the spring are contained in Table 6. With the exception of two teachers (one stating they did not infuse at all in math and the other in math and social studies) all teachers said that they infused the theme to at least some degree in reading, language arts, math, and social studies. An interesting pattern emerged when examining the data on an individual basis, no teacher marked each subject with the same perceived theme infusion rate. This suggests that thought was given to each part of the question and that teachers did not take their responsibility in the evaluation process lightly. It also suggests, when considered with the checklist of desired inservice sessions already presented above, that teachers are open to receive help with theme implementation and theme infusion and would benefit from a well-planned teacher development program tailored to their responses.

Table 6

Trailwoods Teacher Report of Infusion of the Environmental Science Theme in Other Content Areas in Spring 1991 (N = 16)

Content	Not at All	To Some Degree	To a Good Degree	To a Great Degree
Reading	0%	27%	53%	20%
Language Arts (Spelling, English, Writing)	8%	31%	39%	23%
Math	15%	15%	62%	8%
Social Studies	0%	43%	29%	29%

Classroom observations. Sixty-nine classroom visits of 25 or 30 minutes each were made during the fall and winter of 1990-91 for a total of 1,740 minutes of observation time. Visits were unannounced and classes from across the curriculum were randomly selected across all grade levels and school periods. An attempt was made to time visits to make observation periods lie several minutes after the beginning and before the end of classes to observe more instructional and less organizational time. Hands-on learning and activities designed to improve problem-solving and critical thinking skills are important to the environmental science theme according to both the *Elementary III Environmental Science Planning Outline* (Elementary III Environmental Science Task Force, 1990) and the *Long Range Magnet Plan* (Hale & Levine, 1986). Classroom activities or processes involving these critical facets were observed during 45% of the total minute units of observation. They did not have to be theme-centered to be counted, however a large majority of them were observed during activities that were theme-related. Infusion of the theme was observed on 77% of the visits with theme-centered activity occurring approximately 72% of the total time in minutes. The reader is cautioned to be aware that there is no definitive "correct" or "optimal" amount of time for either incorporation of critical thinking skill related activities or infusion of a high-interest theme. The problem in this specific case is compounded by the ambiguity involved in defining and distinguishing between which minute-by-minute activities constitute the teaching of problem solving or critical thinking and where to draw the line between infusion/inclusion of "science" or "social studies" topics in general and "environmental science," a sub-area encompassing parts of both of those disciplines and which could have a more narrow scope including only such things as ecology, recycling, etc.. A relatively broad interpretation of environmental science was used to define all theme-related activities recorded during classroom observations and for general purposes throughout this report. As can

be seen in Table 7, there was a marked difference across various subjects for both incorporation of the hands-on/critical thinking processes and theme infusion. Infusion of the theme was observed to the greatest extent in reading/language arts and science classes (with 90% and 87% of the time in minutes respectively). Theme infusion was also observed in math, art/music, PE, and social studies classes with 40%, 56%, and 65% of the time spent on theme-related activities in those classes. Critical thinking/problem solving activities and hands-on activities are reported separately in Table 7 and also in combination. Many hands-on activities could also have been recorded as minutes with critical thinking/problem solving activities. The combination category allows the total time in minutes to remain at 100%. Critical thinking/problem solving activities were observed in math, reading/LA, and social studies classes for 29%, 21%, and 10% of the time in minutes respectively. These processes were observed in conjunction with hands-on activities in science, math, reading/LA, and social studies classes for 10%, 1%, 7%, and 7% of the total minutes respectively. Hands-on activities were recorded

Table 7

Trailwoods Classroom Data Reporting Observed Infusion of Theme, Hands-On Activities, and Critical Thinking/Problem Solving

1990-91

	Science	Math	Reading/ LA	Social Studies	Music, PE, Art
Total Minutes Observed	400	385	600	150	205
Infusion					
% of Visits Observed	88%	47%	96%	67%	63%
% of Total Minutes Observed	87%	40%	90%	65%	56%
Critical Thinking/ Problem Solving,					
% of Visits Observed	0%	60%	63%	17%	0%
% of Total Minutes Observed	0%	29%	21%	10%	0%
Hands-On Activities					
% of Visits Observed	38%	60%	29%	17%	100%
% of Total Minutes Observed	22%	28%	9%	1%	100%
Crit.Thinking/Prob. Solv./Hands-On Combination					
% of Visits Observed	25%	13%	13%	17%	0%
% of Total Minutes Observed	10%	1%	7%	7%	0%

for 22%, 28%, 9%, and 1% of the minutes for science, math, reading/LA, and social studies respectively. Hands-on activities were observed during 100% of the minutes in art/music/PE, not too unusual when considering these are subjects which particularly lend themselves to hands-on instruction and that observations were timed to miss organizational activities.

Community Partners The school has begun to build community partnerships this first year of implementation. A proposal to help the school on an on-going basis was written by Sir Speedy Printing and accepted by Trailwoods. In addition, Taco John's, McDonalds, Haas Bakery, Blockbuster Video, and Aladdin's Castle have provided the school with incentives for achievement, attendance, and behavior.

Achievement

ITBS. A summary of ITBS scores for 1991 presented in Table 8 shows that Trailwoods students scored at or above the national norm (the 50th percentile) across all grade levels in science, in all but fifth grade in social studies, and in kindergarten, first, second, and third grades in language. Kindergarten, first and second grade students scored at or above the norm across all subjects with the exception of first and second grade reading. Fifth grade students did not score at or above the national norm in any subject area except for science (55th percentile rank) and no grade level scored at or above the norm in reading.

MMAT. Table 9 presents the MMAT scores for Trailwoods, the Kansas City, Missouri School District (KCMSD), and the state of Missouri for 1990-91. According to the MMAT Guide to Score Interpretation and Use (1991), meaningful strengths or weaknesses between groups of students can be determined using the average student error of measurement of 25. Using this criterion, Trailwoods scores are comparable to the KCMSD in reading, math, science, and social studies. When compared with the state, Trailwoods is weak across all the subject areas measured.

Perceptions

Teachers. Responses of teachers to the perception items on a questionnaire administered near the end of the spring semester are summarized in Table 10. An examination of the responses shows that on all but three of the items one-half or more of the teachers responded positively. Items which elicited positive responses from a large majority of the teachers, 85% or more, included the following: item 10) one-hundred percent believe science resource teachers provided the support necessary to implement the theme successfully; item 2) ninety-three percent are satisfied with the quality of the students' field experiences; item 1) eighty-

Table 8

Trailwoods (TW) and District Iowa Tests of Basic Skills (ITBS) Scores Presented as Percentile Ranks for Spring 1991

Grade	Reading		Math		Language		Science		Social Studies	
Ethnic	TW	District	TW	District	TW	District	TW	District	TW	District
Kindergarten										
Minority	---		60	59	49	55	---		---	
Non-Minority	---		75	73	77	69	---		---	
Total	---		66	63	63	59	---		---	
First										
Minority	43	49	56	59	66	68	76	60	87	74
Non-Minority	52	56	66	74	79	72	89	78	94	84
Total	47	51	60	63	72	70	82	67	90	78
Second										
Minority	37	43	40	58	49	59	41	51	66	66
Non-Minority	54	57	61	71	61	64	69	71	82	77
Total	45	47	51	62	54	60	56	58	74	69
Third										
Minority	31	39	33	43	49	53	66	52	45	50
Non-Minority	45	57	49	61	58	65	74	70	65	66
Total	37	44	41	48	54	57	70	58	56	56
Fourth										
Minority	32	34	36	40	40	46	58	49	72	44
Non-Minority	47	52	47	58	54	57	74	66	76	64
Total	39	39	41	45	48	49	66	54	74	50
Fifth										
Minority	31	34	29	37	31	45	51	49	30	41
Non-Minority	33	53	37	52	41	56	62	63	38	59
Total	32	39	32	41	34	47	55	52	32	46

Note: Percentile ranks are converted from mean grade equivalent scores.

Table 9

Third Grade Missouri Mastery and Achievement Test Scores (MMAT) for Trailwoods the State, and the District in Spring 1991

Subject	Trailwoods	State	District
Reading/Lang	272	321	274
Math	284	326	289
Science	309	344	290
Social Studies	289	336	286

Table 10

Trailswoods Teacher Responses to Program Perception Items
Spring 1991

Items		Response Alternatives	(N = 16)
1.	In general, have your students participated in enough field experiences (field trips, outdoor activities, etc.) related to the environmental science theme?	Yes	87%
		No	13%
2.	How satisfied have you been with the quality of your students' field experiences?	Very Satisfied	20%
		Satisfied	73%
		Dissatisfied	7%
		Very Dissatisfied	0%
3.	I am familiar with the goals and objectives in the Trailwoods planning outline.	Strongly Agree	25%
		Agree	50%
		Disagree	25%
		Strongly Disagree	0%
4.	I believe our school is implementing the magnet theme according to the identified goals and objectives.	Strongly Agree	20%
		Agree	67%
		Disagree	13%
		Strongly Disagree	0%
5.	At your grade level, how clear are the environmental science objectives in identifying for you what should be taught?	Very Clear	53%
		Clear	33%
		Unclear	13%
		Very Unclear	0%
6.	At your grade level, how clear are the social studies objectives in identifying for you what should be taught?	Very Clear	20%
		Clear	33%
		Unclear	47%
		Very Unclear	0%
7.	I am comfortable with my knowledge of computers and their use in the classroom.	Strongly Agree	0%
		Agree	21%
		Disagree	50%
		Strongly Disagree	29%
8.	The principal has provided the support I need to successfully implement the magnet theme at the school?	Strongly Agree	20%
		Agree	53%
		Disagree	27%
		Strongly Disagree	0%
9.	The instructional assistant has provided the support I need to successfully implement the magnet theme at the school?	Strongly Agree	27%
		Agree	47%
		Disagree	27%
		Strongly Disagree	0%
10.	The science resource teachers have provided the support I need to successfully implement the magnet theme at this school?	Strongly Agree	53%
		Agree	47%
		Disagree	0%
		Strongly Disagree	0%

Table 10 (continued)

Trailswoods Teacher Responses to Program Perception Items
Spring 1991

Items		Response Alternatives	(N = 16)
11.	Communication among faculty/staff is	Excellent	7%
		Good	20%
		Average	33%
		Fair	33%
		Poor	7%
12.	Communication between faculty/staff and administration is	Excellent	6%
		Good	13%
		Average	31%
		Fair	13%
		Poor	38%
13.	Communication between faculty/staff and students is	Excellent	0%
		Good	47%
		Average	33%
		Fair	20%
		Poor	0%
14.	Communication between faculty/staff and parents is	Excellent	0%
		Good	60%
		Average	0%
		Fair	40%
		Poor	0%
15.	Discipline at Trailwoods is	Excellent	0%
		Good	0%
		Average	25%
		Fair	31%
		Poor	44%
16.	Disciplinary support by administration at Trailwoods is	Excellent	0%
		Good	13%
		Average	33%
		Fair	27%
		Poor	27%
17.	Overall, what rating would you give Trailwoods this year?	Excellent	0%
		Good	19%
		Average	56%
		Fair	25%
		Poor	0%
18.	Do you engage in more environmentally sound activities in your own personal life as a result of increased knowledge about environmental issues gained through your experiences at an environmental science magnet?	Yes	87%
		No	13%

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seven percent believe students participated in enough theme-related field trips; item 4) eighty-seven percent believe the school is implementing the theme according to the school plans goals/objectives; item 18) eighty-seven percent agree with a statement that they engage in more environmentally sound activities in their personal life because of their experiences in an environmental science magnet; item 5) eighty-six percent believe science objectives are clear at their own grade level. Dissatisfaction on the part of a majority of the teachers was reflected on several items. Seventy-nine percent of the teachers stated that they were not comfortable with their own level of knowledge about computers and their use in the classroom (item 7). Seventy-five percent of the teachers rated the discipline at Trailwoods as fair or poor with 54% saying that disciplinary support by the administration was fair or poor (items 15 and 16). Communication was also rated fair to poor among faculty/staff (item 11, 40%), between faculty/staff and administration (item 12, 51%), and between faculty/staff and parents (item 14, 40%). When teachers were asked to list strengths of the program and hindrances to implementation, the strengths listed by at least 10% of the 15 teachers responding to the item included the following: 1) the faculty/staff (73%); 2) the support of the science resource teachers (60%); 3) the administration (20%); 4) the school grounds/facilities (13%); and 5) the students (13%). Weaknesses or hindrances to implementation listed by at least 10% of the 15 teachers responding were:1) poor student aspirations/behaviors and discipline problems (33%); 2) rooms and building too small for theme (20%); 3) principal's lack of support (13%); 4) teachers' lack of knowledge of/experience with the theme (13%); and 5) not enough teacher input (13%). Fifteen responding teachers offered over 50 suggestions for improving the program for the next year. Suggestions varied quite a bit with many only mentioned by a single teacher. All are provided typed and anonymous for the building administration's use in planning. The responses made by at least 10% of the teachers included ideas for use of inservice time, mostly theme or computer related (60%), improve discipline (20%), provide more specific grade level inservice/information (13%), provide teachers a greater role in planning (13%), and have more whole school activities (13%).

School administration and instructional support staff. The administration and instructional support staff also responded to questions asking them to list program strengths, weaknesses, and suggestions for improvement. Ideas that were mentioned by more than one of the nine persons responding included the good work of the faculty/ staff (56%), the support of the resource teachers (44%), the need for more para-professionals and more para-profes-

sional training (44% each), the good supplies/resources (22%), the need to improve the cafeteria food (22%), and the need to have more outdoor activities next year (22%).

Parents. Eighty Trailwoods parents/guardians were randomly chosen to be interviewed by phone during the spring of 1991. Results of the survey, shown in Table 11, were overwhelmingly positive. Ninety-nine or 100% of responding parents were positive on all implementation issues raised (items 1 through 9). Items 10 through 14 show results of questions assessing parent involvement with the school and their child's education. Ninety-six percent of parents said they had met their child's teacher for this year (item 10). Ninety-seven percent and ninety-six percent respectively said they had attended the last parent/teacher conference and that they attended School Advisory Council (SAC) meetings at least occasionally (items 12 and 13). One hundred percent believe that their participation as a parent is welcome at Trailwoods (item 11) and 93% stated that they worked on homework with their child 2-3 days a week or more (item 14). Items 15 through 20 tell how parents responded to questions about the magnet school application process. One-hundred percent said that they live in the district but Trailwoods is not their neighborhood school (items 15 and 16). Ninety-seven percent said their application was handled in a timely fashion (item 17), while 100% said they were treated in a courteous and helpful manner during the application process (item 18). Ninety-nine percent said they believed that the way students were chosen for magnet schools was fair (item 19). Eighty-seven percent, or 58, of the parents said their child used district provided transportation (item 20). Of those 58, 100% said they believed the transportation time was reasonable and that their child was safely transported (items 21 and 22 respectively).

Students. Ninety-seven students from Trailwoods' grades one through five were surveyed in the spring of 1991. The results of the survey, shown in Table 12, were mostly positive. Items on which 90% or more of the students answered positively (yes) included the following: item 1) liked the field trips (98%); item 2) learned a lot on field trips (91%); item 3) learned a lot about science (93%); item 4) learned a lot about nature (90%); item 5) learned about taking care of nature and the world (97%) and item 14) liked science classes outdoors (90%). The items which elicited the least proportion of positive responses were items asking whether students had taught their family things about taking care of the environment (69% yes, item 15), if they thought their friends in other schools would like going to their school (66% yes, item 16) and whether they learned about taking care of the environment in all their classes, including reading, math, art, etc. (57% yes, item 12). Broken down by grade level this

Table 11

TrailwoodsParent Survey Responses to Program Perception Items

Spring 1991

Item		Response Alternatives	(N = 80)
1.	Do you believe your child is acting in a more environmentally responsible way since attending Trailwoods?	Yes No	99% 1%
2.	Has your child made your family more environmentally aware, encouraging you to act more environmentally responsible through recycling, etc.	Yes No	99% 1%
3.	Are you satisfied with the progress your child has made in the environmental science theme?	Yes No	100% 0%
4.	Overall, do you believe that the principal of Trailwoods has been responsive to your concerns?	Yes No	100% 0%
5.	Are you satisfied with the progress your child has made in basic courses(i.e.English and math?	Yes No	100% 0%
6.	Overall, are you satisfied with your child's teachers?	Yes No	99% 1%
7.	Overall, are you satisfied with Trailwoods?	Yes No	100% 0%
8.	Have communications from school like newsletters, notes, or phone calls been understandable and helpful?	Yes No	99% 1%
9.	Would you recommend Trailwoods to other parents?	Yes No	99% 1%
10.	Have you met your child's teachers for this year?	Yes No	96% 4%
11.	Do you believe your participation as a parent is welcome at Trailwoods (e.g. at SAC, as a volunteer, etc.)	Yes No	100% 0%
12.	Did you attend the last parent/teacher conference?	Yes No	97% 3%
13.	Do you attend SAC meetings?	Often Occasionally Never	15% 81% 4%
14.	How often have you worked on homework assignments with your child this school year?	everyday 2-3 days/week occasionally never	52% 41% 8% 0%
15.	Do you live in the Kansas City, Missouri School District?	Yes No	100% 0%

Table 11 (continued)

Trailwoods Parent Survey Responses to Program Perception Items

Spring 1991

Item		Response Alternatives	(N = 80)
16.	Is Trailwoods your neighborhood school--the one your child would attend if there were no magnet schools?	Yes No	100% 0%
17.	When your child applied to Trailwoods was the application handled in a reasonable amount of time?	Yes No	97% 3%
18.	When you applied for a magnet school were you treated in a courteous and helpful manner?	Yes No	100% 0%
19.	Do you think the way students were chosen for magnet schools was fair?	Yes No	99% 1%
20.	Does your child use district provided bus or taxi transportation?	Yes No	87% 13%
21.	Do you believe the school bus or taxi takes your child to school and back in a reasonable amount of time?	Yes No	100% 0%
22.	Do you believe the school bus or taxi provides safe transportation for your child?	Yes No	100% 0%

Note: Data are from phone surveys of Trailwoods parents in Spring of 1991. Actual number of respondents varied between 75 and 80 as some parents did not choose to answer all questions. Questions 21 and 22 were based solely on answers of parents who stated that their child used district transportation (N= 58).

last item varied greatly with 79% and 85% of first and second graders respectively stating that they learned about environmental science in all their classes and 27% and 30% of fourth and fifth graders respectively stating the same.

Extended Day Program

Demographics

Enrollment in the Trailwoods Extended Day Program is summarized in Table 13. Because enrollment fluctuates during the year, the enrollment figures should be considered estimates. The table shows that enrollment in the before school component of the program was 34 with 62% of those being minority students. The number of students attending afternoon only was 40 with a 50% split of minority and non-minority students. Fifty-two students attended both morning and afternoon sessions with 50% of that number being minority.

Table 12

Trailwoods Student Questionnaire Responses to Program Perception Items
Spring 1991

Item		Response Alternatives	(N = 97)
1.	Did you like the field trips you went on this year?	Yes No	98% 2%
2.	Did you learn a lot on the field trips this year?	Yes No	91% 9%
3.	Did you learn a lot about science at school this year?	Yes No	93% 7%
4.	Did you learn a lot of new things about nature?	Yes No	90% 10%
5.	Did you learn a lot about taking care of nature and the world around us?	Yes No	97% 3%
6.	Do you try to save energy more because of what you learned in school?	Yes No	78% 22%
7.	Do you try to litter less because of what you learned?	Yes No	81% 19%
8.	Do you try to save water more because of what you learned in school?	Yes No	76% 24%
9.	Do you save things to recycle--like cans or papers?	Yes No	84% 17%
10.	Have you taught your family things you learned at school about taking care of the environment?	Yes No	69% 31%
11.	Are there some things you learnd about at school that you and your family DO at home for the environment?	Yes No	83% 18%
12.	Do you learn about taking care of our environment in all your classes--like reading, math, and art?	Yes No	57% 43%
13.	Do you like your science labs?	Yes No	85% 16%
14.	Do you like your science classes outdoors?	Yes No	90% 10%
15.	Do you like going to your school?	Yes No	85% 16%
16.	Do you think your friends in other schools would like to go to your school?	Yes No	66% 34%

Table 13

Enrollment for Trailwoods Extended Day Program by Grade Time of Day, and Minority/Non-Minority (M/NM) Status 1990-1991

Grade	A.M. Only			P.M. Only			Both A.M. & P.M.		
	(M)	(NM)	(%M)	(M)	(NM)	(%M)	(M)	(NM)	(%M)
K	4	5	44%	3	3	50%	9	4	69%
1	5	1	83%	4	3	57%	1	3	25%
2	3	1	75%	4	3	57%	6	6	50%
3	3	0	100%	5	4	56%	5	6	45%
4	2	4	33%	2	5	29%	3	6	33%
5	4	2	67%	2	2	50%	2	1	67%
Total	21	13	62%	20	20	50%	26	26	50%

Implementation

The Extended Day before school component operated from 7:00 AM to 8:55 AM daily. During that time students could eat breakfast if they desired and participate in both academic and non-academic activities. Activity choices included such things as doing homework, playing with board games and puzzles, engaging in group games, playing ball, reading books, or listening to a teacher read a story.

The after school component of the program operated from 3:30 PM to 5:30 PM daily. The schedule included 'mini-classes' which were held from 3:30 PM to 5:20 PM and include such offerings as remedial reading, fun with art, crafty kids, simple sewing, Indian medicine shields, remedial math, whimsical music, simple pottery, ball games, and chess (titles taken from fall session brochure).

Perceptions

Staff. In the spring of 1991, eleven staff who work in the Extended Day Program, seven classroom teachers and four para-professionals, responded to a questionnaire about the program. Results of the questionnaire, presented in Table 14, were very mixed. One-hundred percent of the respondents said they were satisfied with the time periods the program is offered (item 3) and that bus transportation for the program was reliable (item 8). Ninety-one percent

Table 14

Trailwoods Extended Day Teacher Questionnaire Responses
Spring 1991

Items		Response Alternatives	(N = 11)
1.	The Extended Day Program provides proper and adequate supervision to students?	Strongly Agree	46%
		Agree	36%
		Disagree	18%
		Strongly Disagree	0
2.	The Extended Day Program gives enough emphasis to academic activities?	Strongly Agree	36%
		Agree	27%
		Disagree	36%
		Strongly Disagree	0%
3.	I am satisfied with the time periods the program is now offered.	Strongly Agree	46%
		Agree	55%
		Disagree	0%
		Strongly Disagree	0%
4.	There is a well-defined program out-lined for Extended Day that provides direction to the staff.	Strongly Agree	55%
		Agree	0%
		Disagree	9%
		Strongly Disagree	36%
5.	Extended day staff work closely with classroom teachers and administration to tie daily academics in the classroom to academic activities in Extended Day.	Strongly Agree	9%
		Agree	46%
		Disagree	9%
		Strongly Disagree	36%
6.	Group size and age groupings are reasonable?	Strongly Agree	18%
		Agree	27%
		Disagree	46%
		Strongly Disagree	9%
7.	I believe that the Extended Day Program has a positive effect on student achievement.	Strongly Agree	27%
		Agree	46%
		Disagree	18%
		Strongly Disagree	9%
8.	Bus transportation has been dependable ?	Strongly Agree	64%
		Agree	36%
		Disagree	0%
		Strongly Disagree	0%
9.	The selection of individuals working with the Extended Day Program has been fair.	Strongly Agree	64%
		Agree	27%
		Disagree	0%
		Strongly Disagree	9%
10.	There is a clear discipline code for the Extended Day Program that is followed consistently.	Strongly Agree	18%
		Agree	18%
		Disagree	46%
		Strongly Disagree	18%

Table 14 (continued)

Trailwoods Extended Day Teacher Questionnaire Responses in Spring 1991

Items		Response Alternatives	(N = 11)
11.	I have been able to get the materials I need for the Extended Day Program in a timely fashion.	Strongly Agree	64%
		Agree	27%
		Disagree	9%
		Strongly Disagree	0%
12.	Overall, what rating would you give the Extended Day Program?	Excellent	27%
		Good	18%
		Average	18%
		Fair	18%
		Poor	18%

of respondents said that they believed the selection of individuals working in the program had been fair and that they were able to get the materials needed for the program in a timely fashion (items 9 and 11 respectively). Eighty-two percent of the respondents said they believe that the program provides proper and adequate supervision to students (item 1). On the negative side, 64% disagreed that there was a clear discipline code for the program that is followed consistently (item 10) and 55% do not believe the group size and age groupings were reasonable (item 6). Forty-five percent of the responding staff do not agree that there is a well-defined program to provide direction for the staff or that the program staff work closely with classroom teachers to tie daily academics in the classroom to those in the Extended Day Program (items 4 and 5 respectively). Overall, 45% of the staff rated the program good or excellent while 36% rated it fair or poor.

Parents. Fifty-six parents who stated on a parent phone survey in spring 1991 that their child attended Extended Day were asked a series of questions about their perceptions of the program. The results of that survey are found in Table 15. Of the responding parents, 100% stated that they had learned about the program through information received directly from the school after enrolling rather than from other sources of advertising such as newspaper, radio, etc. (item 1). Ninety-eight percent said that their child attended primarily because the parent/guardian works (item 2). One-hundred percent said they believe the program gives enough emphasis to academic activities, that it gives proper supervision to students, and that overall they were satisfied with the program (items 3, 4, and 5 respectively).

Table 15

Trailwoods Parent Questionnaire Responses to Extended Day Items
Spring 1991

Items		Response Alternatives	(N = 56)
1.	How did you find out about the Extended Day Program?	Radio/TV	0%
		Newspaper	0%
		School	100%
		District	0%
		Other	0%
2.	Does your child attend primarily because:	Parent/Guardian Works	98%
		Help Catch/Keep Up	0%
		Enrichment	0%
		Other	2%
3.	Do you believe the Extended Day Program gives enough emphasis to academic activities?	Yes	100%
		No	0%
4.	Do you believe the Extended Day Program gives proper supervision to students?	Yes	100%
		No	0%
5.	Overall, have you been satisfied with the Extended Day Program?	Yes	100%
		No	0%

Note: Results are from a telephone survey of parents in Spring 1991.

Conclusions

In its first full year of operation, the Trailwoods Environmental Science Magnet School has registered some significant accomplishments and made some remarkable progress in implementing their magnet theme. As a newly created magnet school, Trailwoods approached its enrollment goal of a 60/40 minority to non-minority (+ /- 2%) split at second and third grade levels, kindergarten, first, fourth, and fifth grade had 68%, 63%, 56%, and 66% respectively. Ample visible evidence of the magnet theme was documented and theme-centered activities and field trips, including camping experiences, were an important part of the program at all grade levels. Evidence of theme implementation visible in the school hallways or classrooms included such things as aquariums,animals (live and preserved), photographs, posters, mobiles, and theme-centered student work from all subject areas. During classroom observation across all grade levels and subjects, additional evidence of implementation was provided by documentation of infusion of the theme, hands-on learning activities, and critical thinking/problem solving activities, all activities called for in the school's planning outline.

A summary of ITBS scores shows that Trailwoods students scored at or above the national norm (the 50th percentile) across all grade levels in science, at all but fifth grade in social studies, and at kindergarten, first, second, and third grades in language. Kindergarten, first and second grade students scored at or above the norm across all subjects with the exception of first and second grade reading. Fifth grade students did not score at or above the national norm in any subject area except for science and no grade level scored at or above the norm in reading.

On the MMAT, Trailwoods scores are comparable with the Kansas City, Missouri School District (KCMSD) in reading, science, social studies,and math. Compared with the state, Trailwoods is weak in all four subject areas.

The perceptions of parents were overwhelmingly positive. Student perceptions were also very positive with large majorities of students responding that they not only liked and were learning about most facets of the program, but also that they were putting into practice many of the environmentally sound behaviors that they had learned. Responses by teachers were mixed. On the positive side, 100% of the teachers responding agreed or strongly agreed that the science resource teachers provided the support they needed to successfully implement the magnet theme. Ninety-three percent stated that they were satisfied with the quality of the students' field experiences. Eighty-seven percent stated that they believed that students participated in enough theme-related field trips, that the school is implementing the theme according to the plan identified goals and objectives, and that they personally engaged in more environmentally sound behaviors as a result of increased knowledge about environmental issues gained through their experience at an environmental science magnet school. On the negative side, teachers revealed communication problems in several areas including among staff/faculty, between faculty/staff and administration, and between faculty/staff and parents with 40%, 51%, and 40% respectively saying that communication in those areas was fair to poor. Another problem area disclosed is discipline with 75% of teachers responding that discipline was fair to poor and 54% saying that administration support of discipline was fair to poor. Two other issues had enough negative response to warrant mention. Forty-seven percent of responding teachers said that at their grade level the social studies objectives were unclear or very unclear and only 21% of teachers stated that they felt comfortable with their knowledge of computers and their use in the classroom.

There are many signs of successful implementation during this first year including visible evidence in displays, some excellent theme-oriented field trips and activities, supportive

science resource teachers, and positive feedback from both parents and students. The early discovery of communication and discipline problems in this first year of implementation will allow the administration and staff time to work on them so that they do not interfere with implementation of the magnet program over the next two years. In addition, the information provided by classroom observations and teacher perception data should be especially helpful to the administration in planning for future staff development and in identifying what issues need resolving in order to build a strong and cohesive team with a shared vision and commitment to successfully using the high interest theme to better provide educational opportunities to the Trailwoods students.

Based on the information in this report, the following general recommendations can be made:

1. It is important that the Trailwoods staff continue to have the opportunity to receive training in the teaching of environmental science and infusion techniques throughout the curriculum. Included should be information on careers related to the theme and how to effectively infuse the information into the courses and field trips.

2. The administration, instructional support staff, and faculty should work diligently at team building and communication improvement. Each person should be encouraged to examine their own commitment to the theme and to the students and determine how they can best contribute to the total effort. Group problem solving sessions should be scheduled for open airing of problems and brainstorming by the group to find acceptable and appropriate solutions. A possible beginning session may be open examination of possible causes of and solutions to communication problems identified in this report.

3. The administration and faculty should work together to formulate a viable discipline plan based on this year's experience with problems and successes in that area. Consensus should be reached and they should resolve as a group to consistently follow-through with the plan. Follow-up discussions should be scheduled during the 1991-92 year to evaluate the plan's effectiveness and adapt it accordingly.

4. The principal and Extended Day Program staff should meet and work to establish a cohesive planning team with open communication and sharing of ideas to identify strengths and weaknesses in the program, using that information to modify and improve it.

5. Additional opportunities for computer inservice are necessary for teachers to make them both able and comfortable in the use of computers in the classroom. It is also important that Trailwoods continue to build their software library, making it readily available to teachers and keeping them properly informed on the availability and usage of software progams.

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